Figure 1: header image, text reads “acmc21: connections”

Proceedings of the Australasian Computer Music Conference 2021. Melbourne, Victoria, and Sydney, New South Wales: held online due to the ongoing COVID-19 pandemic.

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Website, online proceedings, schedule, etc. by Vincent Giles.[^1] [^2] [^3]

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ACMA Website

[1]: CSS Style adapted heavily from: CSS Tricks

[2]: Jekyll Schedule adapted from: Four Kitchens

[3]: Main ACMC21 site layout for Hugo from: KDevo

Keynote 1: Sarah Belle Reid

Abstract

What is an instrument? What is composition? Through the development of new technologies for sound and art-making, boundaries start to overlap and become blurred... when does our creative process become performance? When do our tools and systems start to resist our input, and instead become guides? What is OUR role in all of this?

In this talk, I'll share my experiences shifting from "classically trained orchestral trumpeter" to "experimental electroacoustic performer-composer" over the last decade, and we will look at how the tools, instruments, and environments we create can spark meaningful questions (and answers) around our ever-evolving artistic identity and practice.

Keynote 2: Neil Morris

Abstract

Song Still Sovereign Now delivered by Neil Morris aka DRMNGNOW will explore the importance of First Nations song and its place in still holding Sovereign value in so called Australia . This will be explored through a talk which will cover some of the work of DRMNGNOW including songs such as 'Australia Does Not Exist' , 'Indigenous Land' and 'Get back to the Land' where Morris will explain how he uses mediums of electronic music as a Sovereign tool as a means of honouring Indigenous Song continuation on the continent of so called Australia.

ACMA Annual General Meeting

(i) Confirmation of 2020 AGM Minutes

(ii) Presentation of Committee Reports

(iii) Election of ACMA Committee Members

(iv) Presentation and Consideration of the Statement Submitted by the Association with the Act

(v) Discussion of Plans for ACMC '22

(vi) Proposal of Changes to Membership Fees

(vii) Update on Restarting the Publication of ACMC Journal, *Chroma*

(viii) ACMC2021 Report

(ix) Other Business

Getting Started in Visual Music and AudioVisual Improv

Mark Pedersen and Brigid Burke

Abstract

As co-curators of SeenSound, a Melbourne-based visual music and audio-visual improv series, we propose a practical workshop which introduces participants to both the concepts and the practice of visual music and audio-visual improv through engagement with historical examples and hands-on creation of their own performances, either individually or in small groups.

The practical elements of the workshop will focus on relatively low-cost software and equipment, including open-source software, raspberry pi computing platforms and older / DIY audio-visual equipment that is affordable. The workshop will

focus on a playful approach to technology and visual music concepts and will not assume familiarity with formal academic context or prior experience with technology. Participants with advanced technical skills or knowledge will be encouraged to make room for newcomers and engage with a "beginner's mind" while exploring the audiovisual space as a way of refreshing their own creative practice.

More Information

Topics covered will include:

- building a sense of connection and reciprocity between audio and visual material
- strategies for collecting and assembling raw material
- the use of synthesis vs. concrete materials
- strategies for audiovisual performance

Enter the Packetsphere: Environment-Aware Web Art.

Zak Argabrite

Abstract

This paper addresses approaches to the web browser as an artistic medium, and how that artistic medium is inherently connected to the earth and the people who inhabit it. It focuses on a recent web art piece titled Packetsphere developed by two of the paper's authors (Argabrite and Brown). The idea of the browser-as-medium is introduced by providing an overview of historical and contemporary examples of art on the web. The internet's usage in art will then be further contextualized through an investigation into its real-world implications, with an emphasis placed on the wide-reaching environmental impacts and ethics of internet usage (especially for art). These two paths of inquiry will aid and be aided by an in-depth analysis of Packetsphere, a research-based creative output that focuses on salvaging historical expressions of the web while educating about its potential dangers. This is creatively delivered as an abstract travelogue-style journey through the physical infrastructure of the internet. Information about current realities and consequences of the internet with salvaged media and sounds of the historical web. Through this investigation a better understanding of the very real consequences of our virtual spaces will be met via a creative practice lens.

Farm Music: A Collaboration with Junk.

Bridget Johnson

Abstract

The creation of collaborative works with non-musicians can often dictate new and different approaches to technology development and compositional strategies. This paper explores approaches to development of new music technology that is designed for, but removed from, a compositional process with non-musicians. It discusses the creative process for the development of a system for sonic actuation of farm junk that was part of the 'Farm Music' project installed at New Zealand's Taranaki Arts Festival 2020. The paper looks at the actuation systems that were developed as well as compositional control systems for them. It also discusses the farm objects that were used in the installation and the considerations for actuation of farm junk in this public installation context. Farm Music was a collaboration with music therapist Chris O'Connor and producer Sally Barnett. The project engaged with community members with a focus on engaging men from local farms to focus on their mental health. A series of workshops were run by Chris O'Connor that encouraged the participants to look and listen for sounds in everyday objects. The participants then spent time collecting resonant objects from their farms and brought them to be part of the installation. The installation itself was designed to display the work that participants had completed as well as provide an opportunity for public engagement with the work and the sound making processes.

The systems developed for the work needed to be modular so that whatever junk was found and brought to the installation was able to be actuated. From a technical perspective, the project involved the development of three different actuation systems that aligned with different temporal approaches discussed by music O'Connor: a drone, a scribble, and a strike. In order to create these sounds, surface transducers were used to create drones, motors with soft striking mechanisms for scribbles, and solenoids for strikes. In order to keep all systems modular, they were designed to be attached to mic stands so that final settings of actuators could be flexible depending on the items at the installation.

The presentation discusses and shows the challenges and successes of working in this manner. Further, this presentation provides an as outline for conceptual and technical realizations of the work.

Sonic Cure - Percussion Inspired Modular Synthesizer Interface in Augmented Reality

Weitong Huang

Abstract

This paper describes a synthesizer interface that can be controlled using basic physical interactions between virtual objects in HoloLens 2 with augmented reality (AR) technology. We start by talking about high level designs, including our initiatives of creating this interface. And in the following section, we talk about implementation details of the virtual space and the sound-making mechanism. Finally, we conclude our work by a demonstration video showing our work, Sonic Cure. We would like to view our work as a novel musical performance tool rather than an actual art installation. And we address this in the future work section.

Description:

Sonic Cure is an art inspired musical interface created using the Augmented Reality (AR) technology on the Microsoft HoloLens 2. At the beginning of 2020, when the COVID-19 pandemic started, people around the world were forced to stay at home. The lockdown caused a lot of stress over the population. Japanese composer and artist Mr. Sakamoto Ryuichi published several percussive art pieces onto YouTube to help relief stress and meditation. I came across those pieces and thought it would be a great idea that we be able to do similar performances in a virtual space while also interacting with the surroundings. Therefore, we designed our work, Sonic Cure, to be using intuitive clashing and rubbing actions to create different sounds in AR space so as to provide such environment as well as creating connection between performer and audiences as they share the same physical space.

Author Bios

Weitong Huang: Fourth year Honours student studying a software engineering degree at the Australian National University (ANU). Weitong worked with Dr. Charles Martin in the Code/Creativity/Culture (C/C/C) Studio during the 2020 summer break in ANU's Acton campus on the project.

Credits

Performer/Main Contributor: Weitong Huang Supervisors: Dr. Charles Martin, Assoc/Prof. Henry Gardner HoloLens 2 Support: Dr. Matt Adcock DisunityST-Support: Dr. Andrew Sorensen Other Contributor: Yichen Wang

Point Blank

Josh Paton

Abstract

JWPATON is a Yuin artist and musician currently living on Darug Country, Blue Mountains. Working with lofi field recordings, JWPATON creates layered, processed manipulations of original source material. By pushing the limitations of digital software and a minimal modular synth setup, he creates long form ambient soundtracks.

The Lost

Sze Tsang

Abstract

The Lost is an audio-visual contemplation of the sensation of loss, and the subsequent feelings of dislocation. The work is based on a map of Perth from 1838, detailing many of Perth's now-lost wetlands, as well as a field recording from Herdman's Lake and sonified longitudinal and latitude values. The Lost is an exploration of connections between artist, history and place, and how these aspects can inform and intersect in a piece of work.

Artefacts

Daniel Markulic

Abstract

As technology evolves so too does role of the composer. Instead of letting technology take roles from us, we should expand our borders of what being a composer encapsulates so that we can include these new technologies as a tool of composition, rather than a means of creation. This piece composes with less traditional elements of music and technology, mainly, artefacts –both digital and organic.
The score was created by allowing an Artificial Intelligence meant for creating realistic landscapes, to interpret a traditional score. The output is an abstract visual of images that feel simultaneously familiar and unfamiliar. The performer has been given rules on how to interact the score and create music from the images shown.
When exposed to any image an individual creates connections from both extrinsic and intrinsic factors, whether they be cultural or from learned experiences. Creating an image void of connections allows us to an understanding of what is absolutely necessary in a score, and what is just noise.

Synth Building in CSound With the Cabbage Framework

Jon Christopher Nelson

Abstract

Csound is a sound and music computing system that is a direct descendant of the MusicN family of computer music languages. It is an incredibly powerful and flexible coding environment. Cabbage is a framework that provides flexible graphic user interface widgets that can be used to control Csound code in real time. This workshop will provide an overview of the basic syntax of the Csound within Cabbage. Participants will learn how to create and modify a basic software synthesizer from a simple template. No previous experience with Csound or Cabbage is required, but participants are encouraged to download and install Cabbage on their own computer so they can actively participate in this session.

Additional Information for Participants

The basic Cabbage installation includes Csound and can be found at This Link

Mutatis Mutandis: Using Computational Thinking to Interpret Scores by Herbert Brün

James Aylward

Abstract

This discussion examines the work Mutatis Mutandis (1968/1995) by early computer music pioneer, Herbert Brün (1918-2000). Brün started his work with computer music in the late 1950s in Paris, then the WDR studio in Cologne and the Siemens studio in Munich. In 1962 he was invited by Lejaren Hiller to join the faculty at the University of Illinois where he remained for the rest of his working life.

Next to music, Brün was also a computer graphic artist, a cybernetician, and actively interested in the political and social aspects of music and composition. It is these elements that influence his work Mutatis Mutandis. In this piece, Brün presents a number of computer generated graphics, but instead of treating these graphics like a score, performer is given instructions to "construct, by thought and imagination, the interpreter's version of a structure that might leave the traces which the graphic displays." In this sense, he sought a means of stimulating the idea of structured process for the "composing interpreter" rather than simply an activity in attempted reconstruction. This meta approach can challenge how we view the capability of computers to generate music and what graphic scores can communicate to the performer.

The author will document and reflect upon the process of preparation of this

work for performance. In seeking to develop a version which best combines his creative talents within the bounds of the score, the author will try to develop a deeper understanding and what it means to creatively apply principles of "algorithmic thought" and "cybernetics" to an acoustic performance. He will also present a recording of a performance of this piece that will demonstrate how computers can indirectly be used to inspire creativity.

Author Biographies

Text goes here.

Musica ex machina: integrating the sonic pallet of machines with acoustic instruments.

Lindsay Vickery

Abstract

Californian composer Robert Erickson was one of the first to directly search for the "music in non-musical sounds" as the inspiration of music with acoustic instruments and electronics. He pioneered the use of analog spectrography to visualise the shapes of complex sound objects. This paper examines the evolution of the practice integrating of pre-recorded mechanical sounds and acoustic instruments. The foundations of the practice of exploring mechanical sound sound as a subject for 'musical' investigation is discussed in relation to Modernist developments including Futurism and Musique Concrète. The discussion will focus on w orks from the last 50 years by Robert Erickson (1917-97), Barry Traux (1947-) Peter Ablinger (1959-), Annie Gosfield (1960-) , James Saunders (1972-) , Joanna Bailie (1973-) and the author. Techniques employed by composers for combining mechanical sounds and acoustic instruments including spectral analysis, sonification, transcription, resynthesis and transformation will be considered. Issues regarding coordination and sound projection of live and pre-recorded elements will also be addressed.

Author Biographies

Composer/performer Vickery's music includes works for acoustic and electronic instruments in interactive- electronic, improvised or fully notated settings, ranging from solo pieces to opera and has been commissioned by numerous groups for concert, dance and theatre. He is a founder member of ensembles GreyWing (2016-), Decibel (2009-), HEDKIKR (2001-) and Magnetic Pig (1993- 2003). He writes and presents on a range of topics, most recently on the emergence of the "screenscore", nonlinear music and the realisation of Cage's music, in publications/conferences. He is coordinator of Composition and Music Technology at the WA Academy of Performing Arts at Edith Cowan University.

Discussion: Accessibility in Electronic Music

Chair: Alice Bennett

About

From early electronic music's stereotype-smashing pioneers to Imogen Heap's MiMu gloves, the freedom and flexibility of electronic music has opened a new world of accessible music making. Join electronic musicians Cassy Judy, Brigid Burke, Donna Hewitt, Cissi Tsang, and Sophie Rose to discuss the successes and lingering barriers of accessibility in music production and the industry, chaired by Alice Bennett.

Cassy Judy is a musician and proud Transgender Woman. She is currently releasing singles from her forthcoming Seven Ways EP, which will be released in October. She recently gained national media attention with her action around the Coogee Women's Pool and organised the successful Trans Girlz Calender project and the Trans and Gender Diverse Visibility Photoshoot. She enjoys cauterwauling through song about her latest breakup- of which there are many - as well as her own light-hearted take on life and sexuality! When she's not doing this she looking for sharks on lengthy ocean swims!

Brigid Burke is an Australian composer, performance artist, clarinet soloist, visual artist, video artist and educator whose creative practice explores the use of acoustic sound and technology to enable media performances and installations that are rich in aural and visual nuances. Her work is widely presented in concerts, festivals, and radio broadcasts throughout Australia, Asia, Brazil, Europe and the USA. . Her art practice is traditional acoustic sound, inventive, cutting edge, acousmatic (fixed sound within acoustic spaces) and exists on the cusp between acoustic and electronic sound with mixed media art works, traditional print making, mosaics, paintings on canvas and wood and video art within the field of electronic music and imaging. Her work is beyond the framework of traditional music and video art and is considered as electronic painting, or a high art concert.

Dr. Donna Hewitt is a vocalist, electronic music composer instrument designer and academic. Donna's research has been primarily exploring mediatized performance environments and new ways of interfacing the human body and voice with electronic media. She is the inventor of the eMic, a sensor enhanced microphone stand for electronic music performance and more recently has been creating wearable electronics for controlling both sound and lighting in performance. Her work has attracted funding from the Australia Council for the Arts, most recently with all female collective Lady Electronica. Donna has held academic positions at the Sydney Conservatorium of Music and Queensland, University of Technology and is currently the Head of Creative Arts and Communication and the Coordinator of the Bachelor of Music at the University of New England, Sydney Australia. In 2018 Donna performed her work as part of the VIVID Festival, and The Bondi Feast Festival and in 2018 she presented her work at

the MINT (Music in New Technologies) Conference in Halifax, Nova Scotia. She recently performed her collaborative work Me Too at SFGA in Tokyo and at the Convergence Festival of Technology and New Ideas in Leicester, UK.

Born in 1982 in Hong Kong, **Sze Tsang** (they/them) is a nonbinary audio-visual artist living in Perth, Australia. Their work explores the emotional nature of landscape, and the main focus of their practice has been on their response to the natural landscape as a composer and performer. Part of their practice involves incorporating audio and visual elements of place into compositions, and using the landscape as a narrative device. Sze has performed and exhibited works in Australia, Asia, UK, Ireland and the USA as samarobryn, and has been nominated multiple times in the WAM Song Of The Year Awards in the experimental category. Sze has also been nominated in the 2019 WAM Awards for Best Experimental Artist. Sze is currently a PhD candidate at the Western Australian Academy Of Performing Arts (Edith Cowan University).

Alice Bennett is a flutist and sound artist based in Naarm with creative work encompassing composition, installations, and live performance of both written and improvised music. She is interested in acoustic ecology and bioacoustics and has collaborated with visual artists and scientists, exploring issues of climate, endangered species, and our relationship with the environment. Her music bounces around the borders of experimental sound art and electronic dance music with heavy influences from contemporary art music and 1980s synth pop. Alice lectures in composition and production at the Australian Institute of Music. Alice is the President of Tilde New Music and Sound Art Inc. and Artistic Director of the Tilde New Music Festival. She is currently enrolled in a Masters of Cultural Leadership at the National Institute of Dramatic Arts. In 2019 she suffered a brain injury in a road cycling accident and has spent the last two years in rehabilitation, gradually returning to herself and her creative practice.

Sophie Rose is a contemporary vocals lecturer at the Australian Institute of Music and a doctoral student at the University of Melbourne, Australia. She is a singer, extended vocal technique enthusiast, composer, improviser, performer, and maker. Originally from New Zealand, Rose incorporates Māori mythology into many works and creates new technologies with collaborator, Cloud Unknowing. She performs and collaborates with Sophie Rose & the Manual Breathing and surrealist music collective Little Songs of the Mutilated. Her exploration of the relationship between creative practice and technology development is ongoing. This concern is reflected in her master's thesis, which explores the effects of physical and non-physical environments on extended vocal techniques and throat-singing as a creative practice.

Äú1002,Äù: A Collaborative Networked Performance with CollidePd

Federico Camara Halac and Federico Ragessi

Abstract

Lockdowns and travel restrictions have not only affected our own music classes and artistic research but have also profoundly changed music performance worldwide. In other words, since musicians cannot meet in the same room to play music with each other, they have learned to move their musical performance to the network. We argue that this translation can be thought of as a new opportunity to rethink music and music performance research, considering the network as a new performative space.

As a case study, we present "1002", a collaborative networked performance created using a custom software called "CollidePd". "1002" is an invitation to anonymous collaboration in real time with remote performers, without any required musical training. The sonic research of this performance is based on the sonification of the musical gesture mediated by the mobile device, emphasizing the participatory movement of the performers

Clusters

Leon Liang

Abstract

This piece was conceived at the beginning of 2021, at which time the COVID-19 situation in Sydney was such that the annual New Year's Eve Fireworks could be hosted with a live audience. This provided the sound material for the present composition, which consists of a recording of the Sydney crowd's countdown to the New Year and a portion of the fireworks display, combined with supplementary audio recordings. From this material, the composer has developed small clusters of sound that expand into a mass of sonic chaos, almost like a musical representation of the current pandemic.

Framing the Shot: a reflection over a decade of Recording Live Instruments and Electronics

Stuart James

Abstract

This article is a reflection over a decade of recording methods explored during the production of twelve albums of live electroacoustic music, that is involving

mixed acoustic instruments and electronics. The article focuses largely on the complexities of signal flow associated with live electroacoustic music, and the relationship of the commercial recording studio with the ecosystem of the live electroacoustic system. Various recording strategies are proposed depending on the associated "liveness" required in the realization of the work. Several scenarios are proposed that put into question whether the Digital Audio Workstation (DAW) in the studio environment serves as a recorder, an insert, a distribution hub or splitter, or a receiver. Contemporaneous scenarios, such as Internet-based multitrack recording and telematic performance are discussed, and the article proposes how alternative strategies of signal flow are required for live electroacoustic music, and how audio-over-IP technologies such as Dante allow for a simplification of the physical footprint associated with "cable spaghetti."

The article does include a discussion of industry standard microphone methods including the Decca tree, blumlein, ambisonic, binaural, coincident, non-coincident, and spaced arrays. Alternative scenarios are discussed including inductor and piezo sensors, live audio feedback, sympathetic resonance using transducers, both analog and digital live interactive electronics, spatialisation, and polytempo click-tracks.

With some additional middleware, it is possible to synchronise the DAW session with the Decibel ScorePlayer, an application used to display animated musical scores. This synchronisation allows scores to be used as an integrated tool throughout the editing process. Scoreplayer scores rendered as video can also be synchronized in the DAW allowing for precise editing of note onsets and offsets when required.

Approaches to generative composition with modular synthesis

Alex White

Abstract

A range of compositional processes unique to modular synthesisers including generative systems based upon analog circuits are a key factor driving the resurgence of interest in modular synthesisers.[^1] Using the freely available VCV software, which simulates a modular synthesiser environment, this hands-on workshop will support participants to try out a range of processes usually unique to a hardware-based modular synthesiser. The workshop will focus upon rhythmic systems using clock dividers, and boolean logic, then extend to stochastic and complex control voltage systems to generate musical structures.

I have organised and run a range of workshops over the past 15 years including at Elctrofringe, The Museum of Contemporary Art, Serial Space, LiquidArchitecture, UTS and MESS.

[1]: White, A. (2019). Analog Algorithms: Generative Composition in Modular Synthesis. Australian Computer Music Association 2019, Melbourne, Australia.

The bedroom as studio space: creating and improving the acoustic environment for the purpose of audio engineering

Nadiah Jailani

Abstract

This research project experiments on a rental bedroom to create a workspace for mixing purposes. Mixing is typically done in acoustically treated rooms called the post-production studio or a recording studio control room because of the reliable auditory environment. This research engages on a qualitative method which is then applied to the practical aspect of the project. This project also explores a DIY approach to avoid major constructions and high expenses so it can be applied by aspiring mixing engineers that do not have a high budget to set up their space. The use of suitable acoustic treatment (DIY bass traps and acoustic panels) was applied on the bedroom walls and corners to achieve a similar environment in a bedroom space. The improvement in room frequency was recorded on a software called Room EQ Wizard, to be visually seen.

Can the Roland SP404-SX be used as a complete tool for music production? An autoethnographic study of the process of creating music on the SP

Taiyo Shirai

Abstract

The purpose of this study was to examine the extent to which a digital sampler could be utilized as a complete production tool outside of the genres of hip hop/electronic music. This was done through an autoethnographic study of producing a song “out-of-the-box” using the Roland SP404-SX digital sampler. More often utilized in hip hop production, the use of the SP as a complete tool for music production was conducted through the creation of a song without the use of pre-existing audio materials (sampling songs). Rather, the entire production process (recording, arranging, mixing) was completed without the use of a computer, and the findings suggest that although limited in many aspects, the SP can be utilized as a complete tool for music production by following certain guidelines and methods. However, the limitations found in the workflow used in this study could be potentially avoided through the use of an external recording device used to supplement the SP, and further research would be

required to investigate a more optimal workflow that could utilize the SP and its functions to the fullest potential.

Multimodal Soundscape Synthesis

Sergio Santiago Renteria Aguilar

Abstract

In this work in progress, we study various generative probabilistic models as a critical media for producing artificial soundscape elements from multimodal input, mainly natural language. This is motivated by the lack of generative environmental audio models in the deep learning literature and their potential in sound synthesis frameworks. On a technical level, we use off the shelf models such as multimodal autoencoders to find semantically adequate sound vectors in the latent space of generative adversarial networks. By controlling raw audio adversarial synthesis engines with multimodal interfaces, we flesh out the connections between abstract semantic manifolds and latent sound design spaces. At this point our results lack the quality and resolution of natural soundscapes, but we propose technical improvements. Ultimately, the models will be evaluated in terms of the degree of conceptual resemblance between generated sounds and semantic contents of the conditioning inputs. As such, this work is not concerned with reconstructing causal or physical processes underlying soundscape generation but seeks to leverage crossmodal correlates in humanly annotated audio distributions for creative purposes. More broadly, by interweaving creative practices in soundscape composition and multimodal learning techniques, we contribute to the discussion on the effects of the automation of creative labour.

Exploring aspects of place through sound mapping

Sze Tsang

Abstract

Combining aural and visual elements of a place can be a powerful way of exploring the intersections of time, history and geographical features that exist within a location. This paper details the author's processes in incorporating place into compositional practice through a combination of field recordings and sonification, in relation to the author's work, *The Lost*—an audio-visual contemplation of the sensation of loss and the subsequent feelings of dislocation—and how these feelings related to the artist's own life experiences at the time. *The Lost* is a work partly based on a map of Perth from 1838, detailing many of Perth's now-lost wetlands. This map was then sonified using Iannix (a graphical sequencer), and the sounds were processed and combined in Ableton Live (a Digital Audio

Workstation) with a field recording from the still-existing Herdman's Lake and sonified longitudinal and latitude values of these lost wetlands.

The Lost is an exploration of connections between artist, history, and place, and how these aspects can inform the creation of a work. Through this practice, the author aims to explore how sound and visual elements can combine and resonate with the other, and how such a practice can highlight the connections between artist and place.

Relevant Elephants – The Dark Side of Baboons

Ash Walker

Abstract

Relevant Elephants are me, Ash Walker, and my two stuffed elephants, Relevant and Irreverent. We wish to present a live set exploring how synthesisers can be used to create atmosphere and texture. The elephants will use our recently released ep "The Dark Side of Baboons" as a basis for the performance. I have also worked as a composer and sound designer on several theatre productions and am endlessly fascinated by the way a sound can evoke a certain mood. I also aim to explore the relationship between sound and mood in this performance.

More Information

I will be using two synths: a Roland TB3 and either a Roland Gaia or an MC 808 Groove Box. (tbc) Both need to be plugged into a Power Point and a mixer or amp. I also have a pre-prepared backing track that needs to be played on a laptop or DJ deck. I could send the track via file transfer software or bring it on a USB stick whatever is easier. I cannot operate a laptop myself; hence, I will need someone to press play.

I have Cerebral Palsy so I imagine this would widen the representation of musicians at the Conference and the diversity of it. My preference is to not make a big deal of my disability and just let the music speak for itself. Ironically, I think there is room for a diversity of approaches to diversity that go beyond the loud and proud identity politics of the day. This performance will also contribute to interspecies diversity, with my two stuffed elephants appearing with me on stage. But they, too, would rather just get the hell on with the music!

Higher Ground

Nancy Laver

Abstract

Higher Ground is an electronic work based on the acoustic properties of the bells of St Mary's Cathedral, Sydney. The attraction to cathedral bells was motivated by the desire to explore the sound spectra of church bells and their connection with people and urban spaces. This became even more important with the onset of the global pandemic Covid19 in 2020.

Higher Ground is an exploration in composing music based on sound spectra of cathedral bells. Initially, the bells were to be included in the piece, but due to Covid19 restrictions on bellringers, the approach turned to measuring the spatial features of the bells, or sound spectra, with particular analysis of the frequencies, volume and density of the sound. Other considerations included textures, in particular partnering instruments and sounds to create an interpretive ethereal response including intuitive expressive elements.

As mentioned, Higher Ground has been written using both intuitive choices, and informed choices. Informed choices of fundamental pitches and desired harmonics have been achieved through analysis of the acoustic properties of the ringing bells, using a recording of the bells provided by St Mary's Cathedral. This analysis, shared with intuitive choices formed the foundational compositional material for Higher Ground.

This composition presented many challenges and opportunities to grow as a composer. These included: translating a large composition concept from its theoretical vision to paper, growing the seed through practical ongoing research and planning, and discovering unique compositional techniques to achieve the vision for the piece.

Rethinking the analog-digital dichotomy through the lens of contemporary modular synthesiser practice

Alex White

Abstract

The resurgence of the modular synthesiser (Roads, 2015) more than 30 years after its commercial demise brings with it a range of potential inquiries around the relationship between technology and creative process. As an analog technology transposed into an age of cheap and ubiquitous digital processing, the modular synthesiser also provides a unique scenario for experiences of digital and analog circuitry side by side, and interconnected.

Digital components in a modular system are effectively analogised as all interactions within the system are undertaken by analog electrical signals, analog circuits undertake binary functions such as boolean logic and clock division. Digital concepts such as saving or recall of presets, and separation of interface and function are either denied within the modular system or sit in stark contrast to the broader systems functionality.

Ideas and conceptualisations associated with analog circuits, such as patch programmability (Biddulph et al., 2018) proposed by Serge Tcherepnin, further highlight fundamental differences between digital and analog modules. In a modular synthesiser, analog circuits are utilised on a compositional level, the instabilities and inconsistencies usually associated with a 'warm' sound are then experienced at a musical event level rather than only a subtle aspect of timbre.

These phenomena map out an understanding of the analog-digital dichotomy more complex and nuanced than descriptions typically encountered that focus upon timbre, convenience, and relative expense. Drawing upon my own practice and over 20 interviews with modular synthesiser musicians and designers, this paper and presentation describes and analyses experiences that mutate and complexify analog and digital circuitry understandings in a music technology context.

DreamSound: Deep Activation Layer Sonification

Federico Camara Halac

Abstract

Deep Learning in raw audio-based musical contexts has received much attention in the last three years, and it is still a rich field for exploration. At the intersection of Deep Learning and audio, some attempts were made for translating deep networks from image to audio applications.

DreamSound, an adaptation of the Deep Dream project into an audio-based musical context, is presented as the first translation that uses an audio-trained network, YAMNet. The results are analyzed in detail, and future work is discussed.

More Information

As an appendix, a python package for DreamSound is presented with its help files. Click here

Studio-As-Instrument – Honeysmack's approach to composing electronic dance music

David Haberfeld

Abstract

The practice-led research project investigated a range of approaches to real-time compositional practices engaged in the Electronic Dance Music (EDM) sub-genre known as Acid. Specifically, the study explored how the creation of Acid is effectively assembled through interfacing and combining performance and recording platforms, while being informed by the stylistic characteristics of this established sub-genre. The evolution and impact of commercial interests around EDM were also interrogated.

The project investigates the nature and evolution of the compositional Acid practice under as the artist 'Honeysmack', examining the use of electronic instruments and technologies associated with EDM, with particular attention given to the role of the Roland TB-303 Bassline synthesizer. The research also demonstrated the ways the concept of the 'studio-instrument' defined the Acid genre. This was achieved through a critique of his professional experiences and outcomes as a composer and performer firmly embedded within the broader EDM community and framed by the broader history of EDM more generally.

Author Biography

David Haberfeld has almost three decades of experience as an electronic dance music artist, producer, composer, performer, DJ and academic. Best known for his productions and live performances under the artist moniker Honeysmack. In 1999, he was an Australian Record Industry Association finalist nominee for Best Dance Music Release for "Walk on Acid"—which sampled Burt Bacharach's "Walk on By", earning David a co-writing credit with the Grammy and Academy awarded songwriter. His work as an energetic and colourful live electronic act has earned him a rare respect on the Australian live rock circuit, performing live electronica at festivals nationally and abroad.

David recently completed his PhD in music composition at the Sir Zelman Cowen School of Music, Monash University. Titled: Bacharach, Britney and Acid Techno Bangers: The Evolving Compositional Practice of Honeysmack.

Rise: A metaperceptual design approach case study

Blake Johnson

Abstract

This paper discusses the design and implementation of the kinetic sculpture *Rise*. The work is informed by a metaperceptual design approach which seeks to create artworks that use the perception of the audience as its artistic materials. These metaperceptual works provoke their audiences to direct their attention back upon themselves, inviting audiences to observe the nature of their perception and the subjectivity of their experience.

This paper discusses the creation, design approach, and refinement of a new metaperceptual artwork, *Rise*. Through the careful control of the rhythms and dynamics of four mechatronic units, Rise produces a 'Risset rhythm' – the auditory illusion of a rhythm that appears to accelerate in tempo indefinitely. There is a rich history of creative explorations of these illusory phenomena in sound art and music. *Rise* is unique in that its production is physical, which changes the ways in which the audience can engage and investigate the creation of the illusion, and in doing so, the veracity of their experience

Post-Politics and the Aesthetic Imagination Proposal; Dissensus, Refusal and Participatory Music: Negation and Rupture in Crowd in C

Eric C Lemmon

Abstract

Participatory art has come under criticism recently—notably by Claire Bishop in Artificial Hells—for its often-unintentional incorporation of neoliberal features that intersect with notions of post-politics. Indeed, participants ostensibly self-organize and connect within participatory works of art, and the local space in which participatory art is produced can be seen as encompassing a consensus-based political space that acts as a simulacrum of the Habermasian public sphere. The productive processes of participatory art can therefore be argued to be formally negotiated within this artist-constructed space through a politics of aesthetic preference (not to be confused with Rancière's politics of aesthetics). However, the politics of aesthetic preference that shapes and organizes the production of a participatory artwork are complicated and deserve further scrutiny within the context of post-politics and critiques thereof that have followed in its wake.

With a focus on the time-based and WebRTC networked, participatory computer

music work, Crowd in C by Sang Won Lee, I will draw from theories of refusal and Rancièrian dissensus and apply them to the formal and localized space of participatory music. There, I will show that the Rancièrian gesture is complicated by participants' potential disruption, absconsion or non-participation—all of which have grave aesthetic consequences. On the one hand, interrupting a participatory musical work, breaking the codified rules of the participatory 'happening', and mangling or purposefully misinterpreting the intentions of the 'creator' fissures the common space and repositions political power away from the artist's hegemony of the poietic process towards the assembled public actor(s). On the other hand, instead of inspiring the rupture necessary for a Rancièrian style of politics within participatory art, where common spaces and common concerns are contested, refusal hands local political power over to those who adhere to the common. In exceptional cases, though, mass refusal can also usurp the aesthetic, social, and ethical dimensions that ground participatory works—reflexing back away from an abdication of power towards a negation that collapses the post-political, participatory art space. Through the excavation of these moments within select participatory music, I will put post-political critique and cybernetic systems in conversation with the aesthetic consequences of rupture and refusal

Ode to My Frayed Nerves: Exploring Physical Trauma through Gestural Control in Surround Sound Environments.

Sophie Rose

Abstract

Ode to My Frayed Nerves is a composition for technology, extended voice (singing techniques that fall outside of Western Classical singing), and gesture that metaphorically represents the sensations that occur in my left hand due toa physical trauma. This paper discusses how these sensations are realized sonically, the accompanying performance gestures, the technology used to compose the work, and how this is contributing to a larger research project. It was composed for my doctoral thesis which investigates the bridge between voice and technology through embodiment (the intertwining perceptions of the brain, body, and objects in actions) and human-computer interaction (HCI –the study of the human's engagement or interaction with computers and technology). The aim for the larger study is to enhance the connection between the mind and body and exploit the feedback loop that this creates in composition and performance through design.

The conceptual and methodological underpinnings of this study are rooted in embodiment studies and designing to deepen the user's engagement in a technologically mediated activity. Interaction with an expressive object yields

an experience (Dewey 1934) and engagement with the body is the basis for the construction of conscious experience. Therefore, the inclusion of bodily knowledge is essential to experiential focused design and experimentation. Data has been collected through self-reporting journal entries, audio-visual and audio recordings, and literature-based research. I frame the work through an autoethnographic, and therefore also écriture féminine, lens to document the interactions and assist in fleshing out the academic canon to normalize, diversify, and divulge non-masculine perspectives and experiences.

Tangible Real-time Embodiment and Virtual Object Response (TREVOR): Towards a low-cost and immersive virtual reality Ambisonic environment.

Cloud Unknowing

Abstract

Virtual reality (VR) and surround sound audio reproduction technologies have become common and affordable through the popular adoption of virtual reality gaming platforms. These consumer systems are more accessible to creators than the expensive specialized studios and software packages used for making content for commercial productions. However, affordable VR audio tools to harness this new potential have not yet emerged. Additionally, the surround sound audio creation and manipulation tools that are currently available to these creators ignore or do not fully engage with the unique affordances of virtual reality. They restrict the agency of the user through the continued use of dated control paradigms rooted in skeuomorphism. Restricted agency diminishes the immediacy of the user's engagement with the process of immersive artwork creation and is not in line with the aims of immersive artforms.

To address this issue, I designed a low-cost, immersive, audio manipulation environment comprised of commodity VR gaming hardware (the HTC Vive), Max/MSP and a low-cost, self-made Ambisonic dome (TREVOR). This paper evaluates how this accessible system can offer a greater agency to artists through the enhancement of embodiment, localization and flow. This initial phase is exploratory research for the physical and software design integration of a larger Ambisonic audio and visual toolset.

FerroChord: A Novel System for Spatialised Electro-Acoustic Performance.

Robbie Pattinson

Abstract

FerroChord is a novel musical system created by the author as a mode of exploring electromagnetic string excitation as a spatial audio technique. The system takes the form of an array of eight electromagnetically actuated and mechatronically tuned chordophones with a centralized control system, forming a singular, spatialized, acoustic instrument. This paper details the design process and conceptual underpinning of this system, including the implementation of the system as a long-form installation work. Compositional affordances of the system are explored through the development of this installation with regard to spatialization, polyphonic tonality and non-western 12 tone pitch techniques. The system is explored both with regard to this realized installation and as compositional tool for future works. Situating itself in between the worlds of contemporary music composition and sound sculpture, FerroChord engages with a nuanced field of existing works from fields of luthierie, mechatronics and spatial audio.

Telemidi - the potential of exchanging MIDI across the Internet.

Matt Bray

Abstract

This presentation discusses Telemidi, a targeted approach to MIDI network design developed by the author to minimise the obstruction of latency within MIDI based Network Music Performance (NMP). By exchanging MIDI performance data over The Internet, Telemidi functions as a Telematic Music Performance (TMP, a subset of NMP) and a systems approach to musical engagement that has attracted significant enthusiasm over the recent fifty-year period of emergent digital technologies. Telemidi has connected a diverse array of global participants since commencing in 2017, uniting remote practitioners across Europe, North and South America, and in the Asia Pacific region. During the 2020 COVID lockdowns a significant increase of public interest became focussed towards Telemidi wherein the author noted that globally, as social distancing increased, so too did the culture of online practice within virtual communities. As a result, current investigations for Telemidi are focussed on streaming media produced by NMP events into virtual environments that immerse remote audiences within spatial stimuli such as ambisonic audio. These approaches enable remote artists and musicians to compose, improvise and co-create in real-time with the opportunity for an audience member to enter an interactive, virtual space and experience

the cooperative interplay via innovative media formats.

Critically, the process of sharing time sensitive music performance information over The Internet exposes data to latencies that disrupt the millisecond timing of human-to-human musical intercourse, therefore attaining successful TMP environments has proven to be overwhelmingly elusive. Telemidi networks exchange only MIDI information to benefit from the relatively miniature data packet sizes, before triggering complex, asset laden apparatus at each location which behave in a duplex and 'near-identical' fashion. The reduction in data exchanged is only one example within a suite of Latency Accepting Solutions (LAS) employed within bespoke Telemidi networks, in each case being curated to suit the skills and capacity of performers, the characteristics of genre and to expedite the pursuit of networked musicality.

Lost Horizons, an immersive computer-based work integrating text, visual imagery, spatialized sound in performance.

Roger Alsop

Abstract

This paper discusses the effect of lockdown in Melbourne on the authors/artists, who are from very different cultures and histories, and how this effect may be represented through artistic works. It aims to offer insight to ways of communicating what cannot be communicated using traditional forms of artistic creativity, and to explore alternative ways to connect to an emotional state through art and technology. This has significance in developing creative approaches to integrating diverse art forms within a specific intention, to express the impact of isolation caused by lockdown for the artists.

More Information

We, the authors, are exclusively considering our own, autobiographical, responses to the lockdown situation, and how the different artforms: text, visual imagery, musical composition, and performance can synergistically and synestheically join in a way that communicates this experience to an audience and consequent reconciliation. It is hoped that the discussion and artwork will have relevance to others in similar situations, offering pathways through which they may be able to achieve desired reconciliation and possibly catharsis.

The process of developing the works is: Bilogan wrote poems in response to her everyday experiences of lockdown and found objects (shown in performance), these poems were then read by a computer voice and then translated into MIDI in the program Logic. These translations were then put through a variety of MIDI permutations by Alsop to create the final score performed by Bilogan. The

nuances of Bilogan's performance then influence the spatialization of the sounds in an immersive sonic environment. The visual elements will also be influenced by Bilogan's performance.

In performance we hope to immerse the audience in the personal experience of the artists, and in doing so develop empathy for the universal variety of experiences of lockdown and consequent isolation, while breaking that isolation through shared experience.

Sonic Sculptural Staircase in Highly Immersive and World Aware Augmented Reality.

Yichen Wang

Abstract

Modern head-mounted augmented reality technology has now advanced to the level that it can be said to enable a Highly Immersive and World Aware (HIWAAR) experience. Critical to providing such an experience is the ability of some modern systems, like the Microsoft HoloLens, to capture video information of the surrounding physical environment in real time and to build models of that environment which enable a user to be "world aware" in the augmented world. At the same time, such systems can provide graphical images and audio that surround and augment the user experience in a highly immersive manner. Works that utilize such HIWAAR technology for the creation of augmented multi-sensory experience have been claimed to be effective in activating users' engagement and enhancing art experience. However, few works have specifically considered how augmented art experiences should be designed and fewer have provided rigorous evaluations of the effectiveness of such experiences.

My work explores the affordances of HIWAAR technology with the respect to sonic-tactile interaction in providing an augmented sculptural staircase appreciation experience. I argue that such powerful use of technology prompts a more active, embodied, and emotionally engaging experience to people in discovering, interpreting and acquiring knowledge. I demonstrate this by developing and evaluating an HIWAAR installation, Sonic Sculptural Staircase (SSS). My work commences using interviews with art professionals seeking for design inspirations for the HIWAAR augmented sonic sculpture (or sculptural elements) experience. Drawing on results from these interviews, the SSS was designed and developed. Two different experience conditions, the informational experience and the experiential experience, are introduced in SSS to explore ways in which sound can be integrated with visuals and interaction for people to understand and appreciate a sculptural staircase. Results from user evaluation show that the SSS presented a pleasant augmented sculptural staircase appreciation experience along with enhanced awareness of the physical piece, on both experience conditions over time. Furthermore, preliminary evidence from follow-up studies appear to show that

the experiential experience, which utilized real-time generated electronic music and field recordings mapping related context, has a more lasting impact than the informational experience on the way that participants view the sculptural staircase in their daily lives.

Based on my work, I conclude the aggregated sonic, visual and tactile HIWAAR experience is far more perceptually immersive and effective in communicating compared to a simple visual experience. Positive results revealed from user evaluations preliminarily support the effective-ness of utilizing such technology for the design of other augmented multi-sensory experiences for relevant communities.

Multichannel Monophonic Spatial Application

Jesse Austin-Stewart

Abstract

Exploring space within sound works has led to the creation of many varied spatial loudspeaker systems. The technology needed to create these systems is often beyond the means of individuals to recreate in their personal home or studio environment. To combat this, there have been a variety of applications designed to allow individuals to compose spatially for these systems in their own home by allowing them to listen to a simulation (often in stereo) of how their work would sound over a particular loudspeaker system. These applications are often designed, with particular systems in mind or at least place the listener in a fixed listening position. These applications don't give the listener/composer the opportunity to simulate novel loudspeaker systems.

This paper will review some of the applications designed to allow listeners/composers to simulate various loudspeaker arrays and will also introduce a new application designed by the author that allows for the simulation of novel 2-dimensional loudspeaker systems of up to 64 loudspeakers from various listening positions. In designing an application to simulate novel loudspeaker configurations, composition for novel non-traditional loudspeaker systems becomes much more accessible. The newly designed application also makes for simpler engagement with particular spatial composition approaches for those who are hard of hearing.

Time Scale Modulation in Electroacoustic Mridangam Performance.

Adrian Sherriff

Abstract

The primary challenge of non-traditional mridangam performance is defined by the narrow range of short durations which are typically produced by the instrument. This sonic characteristic lends itself towards a dense rhythmic texture, which is typical of traditional performance style. When a mridang ist participates in music which is not organized by temporal periodicity, traditional rhythmic textures and tropes can lack vitality, as these materials are typically framed by their relationship to periodic structures.

A secondary challenge found in non-traditional mridangam performance is found in the dominance of particular pitch classes in its sonic vocabulary. In traditional performance, these pitch classes align with and reinforce the tuning of the accompanying drone instrument. In the absence of pitch centricity within a given musical context, the dominance of a particular pitch class creates discontinuities between the sound world of the mridangam and a broader musical context.

One solution to this challenge is in the exploration of digital signal processing to expand the sonic resources of the mridangam. A promising area of investigation is in the application and modulation of delay lines to transpose sonic elements from the sound object time scale (generally sounds in the time scale between 100 milliseconds and several seconds) into the meso time scales (sound masses, textures and clouds) and/or micro time scales (sound durations that traverse the boundary between audio and infrasonic frequencies).

Correlations to these transpositions of time can be found in the traditional vocabulary of mridangam performance styles. This includes both the transposition of sonic elements within the sound object time scale and transposition into the micro time scale. In relation to the micro timescale, mridangists both can and do physically produce streams of sonic elements up toa tempo of30 Hz and above. However, the implementation of variable delay lines allows for a significant expansion of musical expression of this range these techniques into non-linear tempo domains.

Sounds of Sustainability

Ivan Zavada

Abstract

Jack-hammering, heavy drilling and pouring concrete are not sounds that one would normally associate with music. However, a group of students from the Sydney Conservatorium of Music have turned these activities into an engaging

piece of music and have built music from the ground up through location sound capture on a construction site.

Wearing hard hats and boots for their guided tour to the 34thfloor of AMP Capital's Quay Quarter Tower, Circular Quay, eighteen first- and second-year students from the Digital Music and Media program at the Sydney Conservatorium of Music recorded the existing construction sounds over an afternoon. AMP Capital approached their neighbors at the Sydney Conservatorium of Music to help them document the sustainable ethos of the building –a vertical village supporting connection and collaboration rebuilt from 63 percent of the existing tower. Led by Dr Ivan Zavada, Senior Lecturer in Composition and Music Technology, the students extracted the industrial sounds of demolition and rendered them into the musical style of their choice, to create eighteen short musical pieces which Dr Zavada edited into one long (56 minute) audio visual experience. Dr Ivan Zavada, a specialist in electroacoustic music with a background in computer technology combined his own skills with an inspiring and progressive approach to teaching, allowing students to explore new ways of problem solving through creativity and innovation.

The proposed artist talk will outline how Dr Zavada responded to the challenge of involving students to create something out of the ordinary while learning practical skills and initiating a unique collaboration with industry partner AMP Capital in Sydney.

More Information

Online presentation via Zoom (15-20minutes) from Bangkok, Thailand where Dr Ivan Zavada currently resides–Zoom presentation would consist of the project description with a Power Point Presentation via shared screen and short question period with online attendees/audience. It is also envisaged that perhaps a student could join the Zoom chat to share their creative experience during the project and how it may have impacted on their own creative practice.